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SELECTION IN RELATION TO THE POTATO SEED PLOT

Donald Folsom, Maine Agricultural Experiment Station

As discussed here, "seed plot" means any part of a grower's potato field or farm to which special attention is given for the purpose of securing better seed for the next year's crop on that farm. It is becoming evident that the climate and the ability of the grower determine to a large extent whether seed plot work is successful. On many a farm by far the best policy will be to attempt no seed plot whatever.

The amount of care demanded by any or all phases of seed plot work varies with the variety, the region and locality, the season, and the use of the farm's crop. For example, leafrolling mosaic is easier to detect in plants of the Green Mountain variety than in those of the Irish Cobbler variety. Again, leaf roll usually spreads and increases more in southern Maine than in northeastern Maine. On one farm leafroll spread and increased more in the 1925 crop than in the 1926 crop. A table-stock farm will demand less from a seed plot in the way of disease control than a certified-seed farm. This in turn will demand less than a foundation-stock farm that is expected to furnish seed to certified-seed farms.

Selection of location. Experience shows that one kind of soil may harbor more scab than another type even in the same field, and that in soil of the same type there may be scab-favoring spots and fields. Rhizoctonia injury resembles scab in these particulars. Blackleg, early blight, and late blight have been observed to be more severe in certain parts of a field than in others, especially when there are differences in elevation and soil moisture. It may be claimed that a grower can have these diseases in the stock grown on a seed plot and yet can eliminate them before his general stock is offered to other growers as seed. It also may be claimed that these diseases should be considered in choosing the location of general-purpose fields of potatoes and so are not of peculiar interest in the seed plot. However, with the exception of scab, these

diseases can interfere somewhat with the thoroughness of roguing, which is a process that is essential for a seed plot. Therefore soil ~~infested with~~ them should be avoided.

Location is of far greater importance with regard to the degeneration diseases than in relation to diseases like those to which reference has just been made. Volunteer potato plants may come from tubers that are perpetuating degeneration diseases. The volunteers may be of another variety in which the degeneration diseases may be much more difficult to recognize than in the seed plot stock. Even if of the same variety as the planted stock, volunteer plants, usually coming up as single-stalk hills from varying depths, are much more difficult to diagnose for disease than are plants from cut seed planted uniformly as to depth. When the latter are planted by tuber units the difference in this respect is still greater. In northeastern Maine we have observed the natural perennial propagation of potatoes in a given field through three Maine winters and through a summer of oats and a summer of hay. Here even a three-year rotation did not enable us to avoid volunteers.

Experiments have shown the danger of perpetuation or harboring of degeneration diseases in the soil in overwintering tubers ~~and in~~ infected perennial weeds. Many weeds probably are guilty that are not yet suspected. Soil perpetuation by other agencies has not been demonstrated as yet, but the evidence is inadequate for conclusive opinions. Several recently disclosed degeneration diseases have not been tested in this particular. Future research work may show that certain insects may carry these diseases over the winter in a locality or field.

On a given farm the proper location of the seed plot may be involved with the nature and location of the neighbors' potato fields. Several years ago, when the spindle-tuber disease was much more common in Aroostook County than it is now, many growers found it difficult to plant a seed plot without its being either near their own bulk field or near a neighbor's diseased field. However, several hundred samples taken in 1922 and 1923 showed that mild mosaic and spindle tuber did not spread as far as was feared might be the case. Although disease spread well beyond 100 feet in some instances, often it was unimportant or absent beyond 15 to 30 feet.

In Aroostook County the evidence to date gives more importance to hill-to-hill spread than to field-to-field spread. It follows then that the flight of insects from field to seed-plot is not as dangerous as the infestation of the seed plot by insects before roguing is completed.

Location can influence the degree of infestation by insects of a kind known to transmit some degeneration disease. Buckthorn, roses, and Prunus (peach, plum, cherry), each enable a different disease-spreading species of aphid or plant louse to overwinter

in the egg stage. The degree of proximity of a seed plot to such plants often determines how early the corresponding aphids will colonize on the seed plot. The earlier they colonize, the sooner they are liable to become numerous and the more disease they can be expected to spread from one plant to another. In Aroostook County we have often found these insects present before the plants were old enough to show the disease for which we were roguing, and sometimes disease was spread early enough to show during the current season in the tops of the newly infected plants.

The smaller the seed plot, or the narrower and longer it is, the more thoroughly it will be invaded by insects of certain kinds which have hibernated in the soil or grass and which are known to transmit a degeneration disease.

Selection of seed. Seed for the seed plot may be selected on the basis of experience which shows that the best can be expected from certain regions, localities, or growers. It may also be selected on the basis of a comparison of various available stocks, such comparison being made most easily by growing samples in a greenhouse or a southern region several months previous to the time for planting the seed-plot.

If thorough roguing is to be facilitated by planting by tuber-units, that is, by planting one tuber at a time in succeeding hills, the grower may wish to select tubers of a certain limited range of weight. This will permit the tuber-units all to be made of the same number of hills with the seed pieces uniform in size, which is not the case when there is great variation of size in the tubers. Such variation of size would cause differences either in the size of the tuber units or in the size of the plants, both of which would be confusing to the person roguing. Selection according to size is necessary if one is to use a labor-saving horse-drawn tuber-unit planting machine.

Selection of the product. Selection of hills or tuber units grown in the seed plot has been advocated by some as a means of improving a strain or stock especially with regard to tuber type or yielding power. When selection works out well, for practical purposes it may make no difference why it works except for one thing, as follows. It may be actually a disease control measure and so be less dependable than if a method based on inheritance. For example, selection may owe its results in improving tuber type to reducing the spindle tuber disease, or in increasing yield to reducing the percentage of a mosaic. In either case selection will work well in some conditions but will disappoint in other conditions, depending upon the extent of disease transmission. Some degeneration diseases are of recent discovery and also some are masked even when present, by varietal or environmental modification of symptoms. I do not know of any results reported yet in which it was not possible or even probable that the beneficial selection was merely eliminating an undetected degeneration disease.

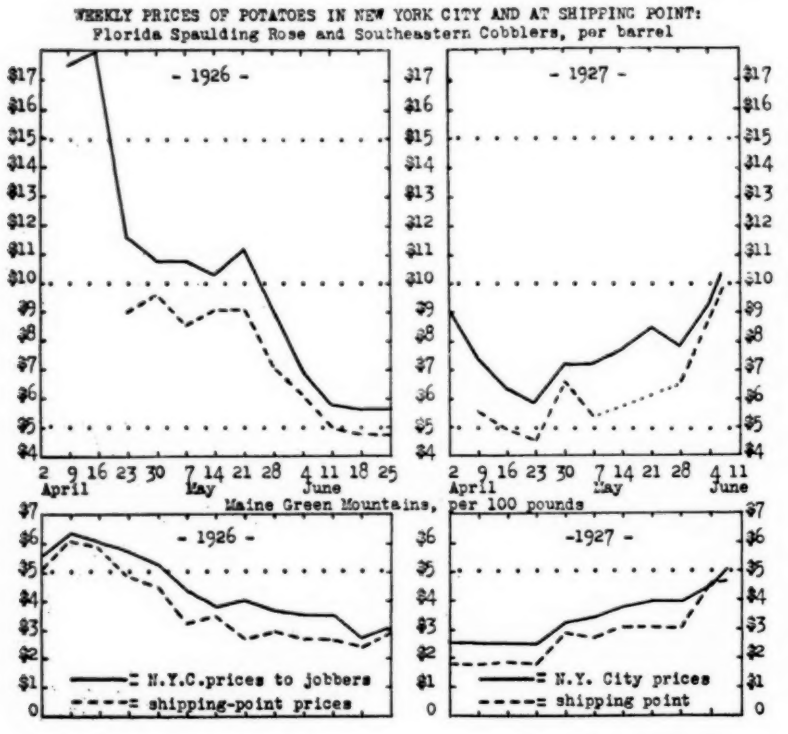
CROP AND MARKET NEWS

SHARP ADVANCE IN PRICES

(Contribution from the Fruit and Vegetable Division, Bureau of Agricultural Economics, U. S. Department of Agriculture

During early June, potatoes were in a much stronger position than a year ago. A revised estimate of acreage in the second--early States reduced the crop prospects in the flooded areas of the Central West. Shipments of new stock continuously decreased after the peak of South Carolina's movement, and the supply of old potatoes was far lighter than in the spring of 1926. During the four weeks ending June 4, only 4,800 cars of old stock rolled to market, compared with 7,800 during the same period last season. Total movement of southern potatoes was about the same as during May, 1926, but last year South Carolina's heaviest shipments did not occur until around June 1, whereas this season the peak in that State was passed by May 15 or 20. The opening of June found prices of all potatoes higher by 50 per cent or 75 per cent than the month before. In a few cases, values had doubled.

This product was the center of interest in fruit and vegetable



markets during the opening week of June. A sharp advance of $2.00 or $3.00 per barrel resulted in an average jobbing price of $10.50 for South Carolina and North Carolina Irish Cobblers, while southern Triumphs jumped $1.50, reaching $6.00-$7.25 sacked per 100 pounds. Maine Green Mountains closed 75 cents higher than the preceding week in eastern markets at $4.15-$5.35, and an advance of at least $1.00 on northern Round Whites made that stock range $4.50-$5.00 per 100 pounds. Considerable excitement prevailed in many shipping sections, as markets climbed to new high levels.

The situation was in decided contrast to that of a year ago. Weekly movement of old potatoes had decreased to 760 cars, or scarcely more than half the output of early June, 1926. Shipments of southern stock also were temporarily decreasing and totaled only 2,200 cars, compared with 3,300 the year before. Either earliness of the season or damage from unfavorable weather had brought Alabama, Louisiana and South Carolina almost to a close, whereas at that time last season those States were still shipping actively. During the first week of June, about 1,000 cars originated in the three States, against 2,500 a year ago. But North Carolina, with 650 cars, shipped four times as many as during the opening week of June, 1926; Texas was still fairly active; Oklahoma and Arkansas were getting under way; Kansas was expected to start soon, and first shipments were reported from the Norfolk section and the Eastern Shore of Virginia. Baltimore quoted first arrivals from Virginia at $8.50-$9.00 per barrel. Georgia has shipped 500 cars of potatoes this season, and Georgia Triumphs advanced in the Atlanta market to $9.00. This stock brought top of $12.00 in Cincinnati.

Markets were rather weak at this time last season. Price trends for both old and new potatoes had been downward since the middle of April, 1926. Northern stock had dropped from $6.00 to less than $4.00 per 100 pounds in leading terminals, while southern arrivals declined from $18.00 a barrel to $6.00. Just the reverse was true this season, as prices tended almost continuously upward during the period from late April to early June. Demand was very active at shipping points. Northern Round Whites on June 4 closed from $1.00 to $1.50 higher than the preceding week, reaching a range of $4.00-$4.70, or nearly twice last June's corresponding f. o. b. price. Maine Green Mountains almost touched $5.00. Similar strength was reported in southern shipping districts. Top of $9.00 per barrel prevailed in North Carolina, and the Irish Cobbler movement at San Antonia, Texas, was winding up at $4.50 per 100 pounds. Southern Alabama was about the only section shipping red potatoes, and a sharp advance there resulted in a $6.00 f. o. b. market. Strength of the situation in the United States was at-

tracting numerous shipments from Canada. Fully one-third of Boston's arrivals during the first week of June came from Canada.

With North Carolina's movement fast increasing and Virginia, —the most important early potato district,—getting under way, it was questionable whether the high prices could long be maintained. Supplies from the Middle West also will become heavier, and that may tend to weaken the central markets. However, in general, it looked like a fairly good opening for the mid-season crop of potatoes, and growers and shippers felt much encouraged.

On page 42 of the American Potato Journal for April, the expected commercial acreage of potatoes in eight second-early States was given as 93,470 acres. This was later reduced to 88,840, as shown below:

Commercial Plantings in Second-Early States, 1927

State	Estimated Original	Acreage Revised
Arkansas	5,560	3,890
Kansas (Kaw Valley)	17,380	15,100
Kentucky	5,340	5,340
Maryland (East Shore)	15,390	15,390
Missouri (Orrick)	5,750	5,180
Nebraska (Kearney)	900	1,300
New Jersey	26,160	27,700
Oklahoma	16,990	14,940

The first of the monthly reports on total potato acreage and estimated production will be released on July 11, and this report will have considerable influence in the market immediately thereafter. **—June 8.**

Connecticut.— The indications are that the acreage planted in this state will be about 20% more than last year as many former tobacco growers are either increasing their potato acreage or changing from tobacco to potatoes on some of their land. The present price of table stock varies in the cities from $2.00 to $2.50 per bushel wholesale. Certified seed potatoes are selling for $3.00 per bushel.**—B. A. Brown, May 18.**

The weather for the past three weeks has been very unfavorable for planting, germination and growth of most crops. The month of May had an average of about four degrees below normal in temperature and an excess of cloudy weather. This has tended to delay field operation. The promise of an early spring has proven to be a disappointment.**—B. A. Brown, June 3.**

Florida.—This has been quite an unusual season, both in the weather, market conditions and yields. In the first place we have had an exceedingly dry winter and spring and the remarkable thing is that we have had a full normal yield and the finest quality of pota-

toes I have ever seen. The first shipment was made on March 14th, which was about two weeks earlier than usual. The early prices were up to the usual standard, in other words we sold at $14.00 per barrel f. o. b. Due to the unfavorable weather conditions in the northern and western markets, the market declined rapidly as the shipments increased until the low level of $4.50 per barrel was reached, the latter part of April. It only remained at this low figure for a few days and took an upward turn and at the present time we are getting $6.50 per barrel for number ones, f. o. b. The shipments are running around 175 cars per day. The price has been lower than for several years, but on account of the exceptionally good yield I believe the most of our farmers will make money. **—G. W. Waller, May 6.**

Editorial Note—This information was mis-sent and was not received at this office until May 20.

New Brunswick.—May was an extremely wet month and planting of potatoes progressed very slowly. It is estimated that no more than one-third of the acreage has yet been planted. It looks as though the estimate of the acreage made sometime ago, on the basis of "farmers' intentions to plant," will need to be revised, for though the purchases of fertilizer were slightly in excess of last year, it is quite probable that a good deal more will be used on grain fields this year than last year, and less will be used for potatoes.— **O. C. Hicks, June 1.**

Kansas.—The writer together with T. P. Oliver, Jesse Haney and A. L. Williams of Topeka, Kansas, had the privilege of attending the Oklahoma Potato Tour near Fort Gibson, Muskogee and Porter.

Growers report about 40 per cent of the acreage lost in floods. The remainder shows stands all the way from 50 to 100 per cent. The Choska and Wybark districts show the best stands and fields in good condition. Growers are beginning to build up their soils through the use of sweet clover and cow peas. Commercial fertilizers are showing good response. Experimental fields under the direction of County Agents Smith, Lowell, Scott and Ingram show marked response to the use of balance fertilizers. In the fields of F. M. McRoberts the fertilized plots show a much better stand than in the unfertilized plots.

Mosaic is a big factor in production of Triumphs in Oklahoma. Growers are not as familiar with the disease as they might be. Fields showing as high as 20 per cent mild mosaic go unnoticed where the field is in a good state of Tilth. The warm weather and sunlight is masking mosaic sumptoms on the tops of the plants. It would be interesting to compare yield tests in fields of good tilth using tuber indexed stock showing mild mosaic and mosaic free tubers. Nebraska and Minnesota Certified stock is comparatively free from mosaic.

Irish Cobblers are increasing in acreage. Growers are well pleased with them and are thinking of planting 50 per cent of their fields to this variety. Blackleg is quite prevalent in Cobbler fields. This is a new disease to Oklahoma growers because they have not been in the habit of growing Irish Cobblers and the Triumph variety is more or less resistant. The fact that Cobblers will recover from a late spring severe freeze to a greater extent than Triumphs is of importance to the Oklahoma growers. Also leaf hopper injury is very apparent on the Triumphs while Irish Cobblers are showing no injury. Spraying with Bordeaux Mixture for hopper injury is not practical but should be.

The seed corn maggot was found associated with blackleg plants in Oklahoma.

The writer is now attending the Kaw Valley Potato Tour. The first day was spent in Shawnee and Jefferson Counties. Fields will not average 70 per cent of a stand. Soil is dry and hard. Rain is badly needed.

Potato Dealers and Growers who have visited Arkansas, North Carolina, South Carolina, Virginia, Oklahoma and Kansas are unanimous in their opinion that there will be no cheap potatoes this summer. Some seasonable deliveries may be expected in late July particularly if growers insist on digging too rapidly.—Z. A. **Stokdyk, May 31.**

Quebec.—The potato acreage in this province will be as large and probably a bit larger this year than in 1926.

Indications point towards a general increase in the acreage to certified seed in this province this year. Applications for inspection of certified seed fields are coming in rapidly. From present indications, we should have about 300 to 350 applicants. Growers are putting in larger fields this year, and there are several new applicants on the list.

There was a big demand this year for certified seed, especially Green Mountain and Irish Cobbler. All certified seed was disposed of by the growers who could not meet all the requests for it.

The Dominion Potato Inspection Service of this province, in cooperation with the Provincial Department of Agriculture, is working on a certified seed potato improvement program, viz., potato illustration fields, test plots, tuber unit seed and the use of complete sprays and better machines. We are endeavoring also to cut down on the number of varieties grown in this province and to improve on those varieties which are most suited to our climate and markets, viz. Green Mountain, Irish Cobbler, Carman No. 1.

Seed treatment with cold corrosive sublimate 1:1000 was used by many growers of certified seed potatoes. Some have already planted small areas, but the weather has been very cold and generally unfavorable for the planting of seed potatoes up to May 18th,

and has caused many to delay planting temporarily. Potato planting operations will be in full swing by the last week of May.—**B. Baribeau, Dist. Insp. for Quebec, May 19th.**

Virginia.—The prospects of a crop of potatoes in the Eastern Virginia section is much more promising than a week ago. Due to a prolonged drought which prevailed for several weeks the potato crop on the poorer and dryer types of soils was suffering severely. On the night of May 28th, about two inches of rain fell and since that time cloudy weather has prevailed. The appearance of the potato crop is greatly improved due to the abundant supply of moisture and gives promise of at least a fair yield over most of the area.

The writer had the opportunity to inspect many fields in the Eastern Shore section last week. In the lower end of Northampton County the stand of potatoes is very regular and the growth of the vines sufficient to indicate a yield of 60 to 80 barrels per acre by the middle of June.

A few potatoes will be dug before the 10th of June but the heavy movement will not commence until after that date.

In the Northern end of Northampton County and throughout Accomac the conditions for growth have not been very favorable In many fields the stand is rather poor and the growth irregular. It is not likely that the yield in this section will average more than 40 barrels per acre unless exceptional weather conditions prevail from now until harvest.

In the Norfolk section the yield will probably be similar to that of last year. In many fields the plants have made exceptionally fine growth while in others the indications are that only a fair crop will be secured.

Considerable black-leg is present in the Norfolk section while very little has been noted in the Eastern Shore fields.

The local potato growers are very much encouraged at present over the trend of potato prices which have been decidedly upward during the past two weeks. The yield in South Carolina has been poor due to a prolonged drought and the conditions in North Carolina are somewhat similar. It is hoped that a large per cent of the North Carolina crop will be moved before the potatoes in Virginia. section are ready for market. Last year the heavy shipments from North Carolina in conjunction with those from Virginia greatly depressed the market which had been exceptionally strong.

The potato tour on the Eastern Shore will likely be held about the 15th of June. The scope of the work in the demonstration plats has been considerably enlarged since last year and shows very striking differences between seed grown in different localities and by different growers in the same locality.—**H. H. Zimmerly, May 31.**

AMERICAN POTATO JOURNAL

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WALTER M. PEACOCK. EDITOR & BUS. MGR.

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THE JOURNAL

"Let me advise you that I consider the American Potato Journal the finest publication of its kind ever published."—**B. Baribeau, District Inspector, Ste. Anne de la Pocatiere, Quebec, May 19, 1927.**

"I read the American Potato Journal with a great deal of interest and feel that it is fulfilling a very important need among potato growers. I wish more growers would read it."—**Miles Horst, Pennsylvania Editor of the Pennsylvania Stockman and Farm, Pittsburgh, Pa., May 28, 1927.**

CASH FOR BACK NUMBERS

The editor will give 20 cents and postage on a limited number of the May, June and September numbers published in 1926. These are being requested for those who want complete files of the American Potato Journal.

GOOD WORK

Utah.—Have been very fortunate here in cleaning up the Russets by staking the clean hills in the summer, pulling the vines early in the fall and examining or cutting through all the roots to see

if they are clean, and digging with the shovel. I have ten or twelve tons now that have been declared clean by the State officials, Dr. Richards the foremost of them. Am working on the Irish Cobbler the same way and have even eliminated mild mosaic from them. I will have to use all my clean Cobblers as a foundation stock. I use hot formaldehyde 124 degrees to 126 degrees F. 3 minutes.

Am hoping to get several subscriptions soon.—**L. Leroy Porter.**
April 13.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

Of American Potato Journal published **monthly** at **Washington, D. C., for April 1, 1927.**

Before me, a **Notary Public** in and for the State and county aforesaid, personally appeared **Walter M. Peacock**, who, having been duly sworn according to law, deposes and says that he is the **Editor and Bus. Mgr.** of the **American Potato Journal** and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher **Potato Assn., of America, Takoma Park, Washington, D. C.**
Editor **Walter M. Peacock, Takoma Park, D. C.**
Business Manager **Walter M. Peacock, Takoma Park, D. C.**

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) **None.**

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) **None.**

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers

during the six months preceding the date shown above is .... (This information is required from daily publications only.)

Walter M. Peacock, Editor and Bus Mgr.

Sworn to and subscribed before me this **6th** day of **June 1927.**

(Seal) **F. E. Singleton,**

(My commission expires **May 18, 1928.**)

Form 3526.—Ed. 1924.

Note.—This statement must be made in duplicate and both copies delivered by the publisher to the postmaster, who shall send one copy to the Third Assistant Postmaster General (Division of Classification), Washington, D. C., and retain the other in the files of the post office. The publisher must publish a copy of this statement in the second issue printed next after its filing.

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Herman Rehder, Sr., Alliance, Nebr.— " " "

Henry J. Ross, Hemingford, Nebr.— " " "
Clarence A. Rowley, Alliance, Nebr.— " " "
Smith & Perry, Alliance, Nebr.— " " "
Sorenson Bros., Curly, Nebr.— " " "
M. O. Swanson, Alliance, Nebr.— " " "
Anton Thomsen, Alliance, Nebr.— " " "
Bernard Tomich, Bushnell, Nebr.— " " "
Walton Bros., Chadron, Nebr.— " " "
J. H. Wheeler & Son, Marsland, Nebr.— " " "
P. L. Wilson, Glen, Nebr.— " " "

POTATO CONFERENCES AND TOURS

New Jersey.—The Third Annual Seed Potato Certification Conference will be held at Freehold, N. J. on June 20-21. Without question this will be the most interesting educational conference on potato diseases and certification ever held. Indications are that there will be a good attendance. All inquiries should be sent to Wm. H. Martin, N. J. Agr'l Exp. Station, New Brunswick, N. J.

New York.—The Long Island Potato Tour will be held June 22, 23, and 24. For further information write to H. C. Odell, Farm Bureau Office, Court House, Mineola, N. Y.

Louisiana.—The Louisiana Annual Interstate Potato Tour of Certified Triumph Seed Producing Sections will be held July 18 to Aug. 20. It will start in Western Nebraska; July 23-30, Southern Montana; Aug. 1-2, in the vicinity of Idaho Falls, Idaho; Aug. 3-6, Central Montana; Aug. 8-12, Northern Montana; Aug. 13-15, North Dakota; Aug. 17-18, Minnesota; Aug. 19-20, Northern Wisconsin. For further information write to any of the following: G. L. Tiebout, Agr'l College, Baton Rouge, La.; Wm. Morrow, Alliance, Nebr.; F. M. Harrington, Bozeman, Mont.; E. R. Bennett, Moscow, Idaho; H. L. Bolley, Agricultural College, N. Dakota; A. G. Tolaas, Univ. Farm, St. Paul, Minn.; J. G. Milward, Univ. of Wisconsin, Madison, Wis.; and Amos Radcliffe, Eagle River, Wisconsin.

All persons interested in certified Triumph seed potatoes are invited to join the tour. This affords an organized means of inspecting fields entered for certification, studying methods, and meeting inspection officials, growers and others interested in certified Triumphs.

REVIEW OF RECENT LITERATURE

VAN DER GOOT, P.—Accelerating the sprouting of potato tubers with carbon disulfide [trans. title].—*Landbouw [Buitenzorg, Java], 2 (1926), No. 6, pp. 415-425; Eng. abs., pp. 423, 424.*

While conducting investigations on fumigation against potato

tuber moth van Heurn observed that vapors of carbon disulfide caused a stimulated sprouting of most potato varieties studied, even when newly harvested. The author, continuing the study, obtained best results with 40 cc. of carbon disulfide per cubic meter during 24 hours, although some sorts sprouted equally well with only 25 cc. Results became less favorable with 60 cc., and with higher concentration the vapor appeared to cause the tubers to rot. Carbon disulfiide stimulated sprouting equally well under such low temperatures, 55 to 75 degrees F., as prevail in the potato growing mountain districts of Java. In the most favorable cases sprouting occurred after 6 days and the tubers could be planted within a month after fumigation. Most varieties, however, required from 6 to 8 weeks after fumigation before planting was possible. Yield decreases due to fumigation could not as yet be observed.—**Henry M. Steece.**

KNORR, P.—**Versuchsergebnisse auf dem Gesamtgebiete des Kartoffelbaues in den Jahren 1921, 1922.—Results of German experiments in all branches of potato culture in 1921-22 (trans. title).**—***Arb. d. Forschungstitutes f. Kartoffelbau, Heft 8. 1927. Berlin (P. Parey).***

This report, published with considerable delay as the last number of the periodical of the former German Potato Research Institute, agrees in the general arrangement of the chapters with the numbers 1, 4 and 6 of the same series, with the exception of "Comparative variety tests" which is omitted. It gives a summary of the work done in various Experiment Stations of Germany and intends to prove the effects of different measures employed in improving or watching soil treatment, crop rotation, fertilization incl. green manure, seed potato, planting, breeding, control of diseases, harvest time and storage conditions etc. In future these reports will be published by the "Biologische Reichsanstalt" and are intended to be brought up to date with the next paper of this kind.—**H. W. Wollenweber, Berlin, Dahlem.**

KNORR, P.—**Results of German experiments in all branches of potato culture in 1921-22 (trans. title).**—***Arb d. Forschungstitutes f. Kartoffelbau, Heft 8. 1927. Berlin (P. Parey).***

ROBB, WILLIAM.—Potatoes.—***Report by the Director of Research, Scottish Society for Research in Plant Breeding, (1926), pp. 10 - 16.***

This section of the report gives an account of the potato breeding work for the year 1925. About 1200 new seedlings and 322 which had been raised from seed one or more years previous to 1925 were grown. The yields of these are given, also the occurrence of virus diseases, the amount of disease in the tubers during storage and the results of cooking tests.

A comparison of the results of early and late harvesting indicates that plants harvested in the green stage insure more vigorous seed stock than those harvested after maturity.

The dry matter content of the tubers was found to be very variable, single tubers of the same variety varying by 3.5 per cent or more. Experiments indicate that a fair degree of accuracy can be obtained by using the pulp of 30 tubers, thoroughly mixed.

For future work crosses have been made between immune varieties, particularly those ripening early. A few varieties have also been inbred.—**C. F. Clark.**

SANDSTEN, E. P.—Potato growing in Colorado.—*Colorado Sta. Bul. 314 (1927), pp. 30, figs. 4.*

The status of potato production in the State is outlined, and accounts are given of soil and fertility needs, handling seed, varieties for different sections of Colorado, cultural and field methods, and harvesting and storage practices. Important diseases and control methods are described briefly.—**Henry M. Steece.**

SMITH. H. B.—Chromosome counts in the varieties of Solanum tuberosum and allied wild species.—*Genetics, 12 (1927), No. 1, pp. 84-92, pl. 1, figs. 13.*

According to cytological studies at the Maine Experiment Station and the University of Michigan the haploid chromosome number is 12 for **S. jamosii** and **S. chacoense,** 24 for **S. fendleri,** and 36 for **S. demissum,** indicating that in these wild species of potato the haploid chromosome number is some multiple of 12, as has been reported for other species of the Solanaceae. The McIntyre and McCormick cultivated varieties, characterized by a relatively high percentage of fertile pollen, were found to have a haploid chromosome number of 24 and no unpaired chromosomes. The appearance of haploid cells with approximately 48 chromosomes suggested that tetraploidy has occurred in the Early Ohio variety. The fact that the haploid chromosome number of the potato has increased from 12 to 48 apparently indicates that tetraploidy may have been a factor in the development of the cultivated varieties. —**Henry M. Steece.**

STOW, I.—A cytological study on the pollen sterility in Solanum tuberosum L.—*Imp. Acad. (Japan), Proc., 2 (1926), No. 8, pp. 426-430, figs. 7.*

Experiments at Hokkaido University involving 16 varieties of potatoes showed the haploid number of chromosomes to be 24. The reduction division of the pollen mother cells proceeds normally at 15 to 20 degrees C. and normal tetrad cells, later developing to fertile pollen grains, are produced. Abnormalities occurred at higher (25-30) temperatures, and the degree of abnormality in the meiotic division appeared to vary according to the potato variety.—Henry **M. Steece.**